CLAIMS

1.   A method for verifying the authenticity of a bank note or other note having a security thread embedded therein, comprising the steps of:

illuminating a first section of said bank note using a first light source;

sensing with a first detector light transmitted through said first section and generating a first signal responsive to said transmitted light;

scanning said bank note relative to said first section; and

comparing the level of correlation between said first signal responsive to said transmitted light and stored characteristics corresponding to the transmission properties of an authentic bank note.

2.   A method as claimed in claim 1, wherein said security thread is disposed along the short axis of said bank note.

3.   A method as claimed in claim 1, wherein said illuminating step further comprises illuminating a second section of said bank note using a second light source.

4.   A method as claimed in claim 3, wherein said first and second light sources are positioned substantially vertically in the same plane as said security thread.

5.   A method as claimed in claim 3, wherein said sensing step further comprises sensing with a second detector light transmitted through said second section of said bank note and generating a second signal responsive to said transmitted light.

6.   A method as claimed in claim 5, wherein said first and second signals are summed prior to said comparing step.

7.   A method as claimed in any preceding claim, wherein said stored characteristics corresponding to the transmission properties of an authentic bank note are firstly obtained by scanning an authentic bank note having a security thread embedded therein.

8.   A method as claimed in claim 7, wherein said stored characteristics corresponding to the transmission properties of an authentic bank note are based on a combination of the resultant rise time, fall time, pulse amplitude, and pulse width obtained from said scanning step.

9.   A method as claimed in any preceding claim, wherein said stored characteristics corresponding to the transmission properties of an authentic bank note are retained in a non-volatile memory.

10.   A method as claimed in claim 1, wherein said comparing step further comprises the step of checking whether said first signal responsive to said transmitted light from said scanning step meets a required threshold prior to comparing the level of correlation.

11.   A method as claimed in claim 10, wherein said required threshold is based on the ratio of the resultant pulse width to pulse rise time obtained from said scanning step.

12.   An apparatus suitable for verifying the authenticity of a bank note or other note having a security thread embedded therein, comprising:
        a first light source disposed opposite to a first detector, wherein said first detector outputs a first signal responsive to the transmitted light, said first light source and said first detector being disposed such that said bank note can pass therebetween;
        encoding means for digitally encoding the output of said first detector; and

processing means for comparing the level of correlation between said digitally encoded output and stored characteristics corresponding to the transmission properties of an authentic bank note.

5   13.   An apparatus as claimed in claim 12, further comprising a second light source disposed opposite to a second detector, wherein said second detector outputs a second signal responsive to the transmitted light, said second light source and said second detector being disposed such that said bank note can pass therebetween.

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14.   An apparatus as claimed in claim 13, wherein said first and second detectors are positioned substantially vertically in the same plane as said security thread.

15   15.   An apparatus as claimed in claim 12, wherein said encoding means also digitally encodes the output of said second detector.

16.   An apparatus as claimed in claim 15, further comprising summing means for receiving and combining the digitally encoded outputs of said first and
20   second detectors.

17.   An apparatus as claimed in any preceding claim, wherein said stored characteristics corresponding to the transmission properties of an authentic bank note are based on a combination of the resultant rise time, fall time,
25   pulse amplitude, and pulse width obtained from said scanning an authentic bank note having a security thread embedded therein.

18.   An apparatus as claimed in any preceding claim, wherein said stored characteristics corresponding to the transmission properties of an authentic
30   bank note are stored in a non-volatile memory.

19.   An apparatus as claimed in claim 18, wherein said non-volatile memory comprises a solid state memory.

20.   An apparatus as claimed in claim 13, wherein said first and second light sources are infrared emitters.

21.   An apparatus as claimed in claim 13, wherein said first and second detectors are infrared photo detectors.

22.   An apparatus as claimed in any preceding claim, further comprising a visual or audible alarm, being activated if said digitally encoded output and said stored characteristics corresponding to the transmission properties of an authentic bank note do not correlate.

23.   An apparatus as claimed in any preceding claim, wherein said processing means comprises a microprocessor unit.

24.   An apparatus for verifying the authenticity of a large volume of bank notes or other notes each having a security thread embedded therein, comprising:

a bank note transfer route for transferring each of said bank notes;

a scanning unit for obtaining various characteristics of each of said bank notes, said scanning unit comprising at least one light source disposed opposite to at least one detector, wherein said at least one detector outputs a signal responsive to the transmitted light, said at least one light source and said at least one detector being disposed such that each of said bank notes can pass therebetween;

a processing means for receiving and digitally encoding the output of said at least one detector and comparing the level of correlation between said digitally encoded output and stored characteristics corresponding to the transmission properties of an authentic bank note; and

selection means for sorting authentic bank notes and un-correlated bank notes.

25.   An apparatus as claimed in claim 24, wherein said bank note transfer route further comprises a floating level tray and feeder wheel mechanism.

26.   An apparatus as claimed in claim 24, wherein each of said bank notes is transferred substantially in the horizontal plane.

27.   An apparatus as claimed in claim 24, wherein said scanning unit and said processing means are located in a secure moulded unit to prevent unauthorised access by personnel.

28.   An apparatus as claimed in claim 24, wherein said selection means further comprises a conveyor mechanism, authentic bank note tray and counterfeit bank note tray.

29.   An apparatus as claimed in claim 28, wherein each of said trays are provided with electronic sensors allowing the number of bank notes falling into each tray to be counted.

30.   A method for verifying the authenticity of a bank note or other note having a security thread embedded therein as hereinbefore described.

31.   An apparatus suitable for verifying the authenticity of a bank note or other note having a security thread embedded therein as described herein with reference to Figures 1 to 8 of the accompanying drawings.

32.   An apparatus for verifying the authenticity of a large volume of bank notes or other notes each having a security thread embedded therein with reference to the Figures 1 to 8 of the accompanying drawings.